

## **Remarks**

### Amendments to Specification

Applicants amended paragraphs 0017 and 0023 to change nozzle 64 to nozzle surface 64 to maintain consistency throughout the specification. This original designation of reference number 64 as “nozzle surface” is found in paragraph 0013 and is also seen in its first occurrence in paragraph 0017 of the specification as originally filed. Applicants respectfully request entry of this amendment into the record.

### Amendment of Dependent Claims

Applicants have amended dependent Claims 2-16 and 18-26 to more thoroughly incorporate those claims into independent Claims 1 and 17, their respective base claims. Applicants respectfully request entry of the amended claims into the record.

### Amendments to Claims 1 and 17

Applicants have amended Claims 1 and 17 to include the limitation that the dome reservoir lacks a piston. This is supported by Figures 3-5 which contain cross sectional views of the dome reservoir showing the absence of a piston. Applicants respectfully request entry of the amended claims into the record.

### New Claim 27

Applicants have added new Claim 27 which depends from Claim 22 which claims a method of relieving pressure that includes the steps of specifying a pressure for the second fluid and controlling the specified pressure. New Claim 27 defines the specified pressure as a function of the ratio of the nozzle area to piston seal area of the relief valve. Support for this amendment is found in paragraph 0023 of the specification.

The § 112, second paragraph Rejection of Claim 10

The Examiner rejected Claim 10 under 35 U.S.C. § 112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Specifically, the Examiner rejected Claim 10 as having improper antecedent basis for the oil limitation. Applicants thank the Examiner for pointing out this error.

Applicants have amended Claim 10 by changing the dependency of Claim 10 from Claim 8 to Claim 9. Claim 9 contains the first recitation of the limitation “oil”. Applicants respectfully request entry of this amendment to Claim 10 and withdrawal of the rejection of Claim 10 under § 112 second paragraph.

The Rejections of Claims 1-26 under § 102 (b) or in the alternative, under § 103 (a)

The Examiner rejected Claims 1-6, 8-12, 14, 16-22, 24 and 25 under 35 U.S.C. § 102 (b) as anticipated by U.S. Patent No. 5,027,852 to McNeely (“McNeely” or “the McNeely patent”). In the alternative, the Examiner rejected Claims 1-6, 8-12, 14, 16-22, 24, and 25 under 35 U.S.C. § 103 (a) as obvious over McNeely in view of U.S. Patent No. 3,913,885 to Greenwood, et al. (“Greenwood” or “the Greenwood patent”). Applicants have amended have amended Claims 1 and 17. Applicants respectfully traverse the rejection of the claims as amended and request reconsideration.

“A claim is anticipated only if each and every element as set forth in the claims is found, either expressly or inherently described in a single prior art reference.” *Vandergaal Bros. v. Union Oil of California*, 814 F.2d 628, 631; 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987). MPEP § 2131. (Emphasis added.) Applicants respectfully submit that McNeely fails to anticipate independent Claims 1 and 17 as it fails to disclose each element of Claims 1 and 17. Specifically, Applicants respectfully point out that the McNeely patent fails to disclose a springless dome reservoir that also lacks a piston as is disclosed in the instant application. The

dome reservoir in the instant application is designated by reference no. 301 in Figures 1 and 3-5 and is described in paragraph 0014 of the specification. It can be seen that the dome reservoir is a chamber with the single outlet into the valve through the dome port. This is also described in Claim 1 as “a springless dome reservoir connected to said main valve body via said dome port and arranged to hold a second fluid, said dome reservoir external to said main valve body...” and “wherein said springless dome reservoir lacks a piston...”

Applicants respectfully traverse the Examiner’s designation of component 106 in McNeely as an analogous dome port. First, component 106 in McNeely is seen in Figure 1 of the McNeely patent as a pipe or line and is described as such in the McNeely patent. (See McNeely, col. 3, line 68 through col. 4, line 4 stating, “...an intermediate fluid chamber **104** is formed in enlarged bore portion **66** adjacent piston **70** which is in continuous fluid communication with dome chamber **36** through dome line **106** from chamber **104** to dome chamber **36**...” (Emphasis added.) Thus, component 106 is a pipe not a chamber extending from the valve body.

In addition, assuming *arguendo* that component 106 is a chamber, which it is not, Applicants respectfully submit that the McNeely patent again fails to anticipate Claim 1 as it cannot be considered to be a “springless” dome reservoir as claimed in Claims 1 and 17, nor does it lack a piston. In McNeely, the second fluid is contained in dome chamber 104 in valve 40. Applicants respectfully point out that the fluid pressure in dome 104 is adjusted using a spring 54 biased against a piston to force fluid through pipe 106 to dome port 36. Thus, even if pipe 106 is considered to be part of the dome chamber in conjunction with chamber 104, dome reservoir 104/106 is not a springless dome reservoir that lacks a piston as is claimed in Claim 1.

Moreover, Claim 1 has been amended to claim a dome reservoir in which the downward force of the second fluid is created solely by compression of the second fluid within the springless dome reservoir. In contrast, the McNeely patent describes the pressure applied by the second fluid as created by the force of piston 70 against chamber 104 and line 106. See McNeely col. 4, lines 57-61 stating, “...piston **70** downwardly as shown in FIG. 4 to provide

fluid communication between inlet chamber 72 and dome chamber 36 through line 106 and intermediate chamber 104 thereby to re-pressurize dome chamber 36.”

Thus, the McNeely patent fails to anticipate Claim 1 as it fails to disclose each element of Claim 1, namely a dome reservoir that lacks both a spring and a piston to pressurize fluid to force it through the dome port into the valve body of the claimed valve. Similarly, McNeely fails to anticipate the method claimed in Claim 17 as it fails to disclose the step of exerting a downward force on the valve piston using a dome reservoir that lacks a spring and a dome piston. Applicants respectfully request reconsideration and withdrawal of the rejection of Claims 1 and 17 as anticipated by the McNeely patent.

Claims 2-6, 8-12, 14, and 16 depend from Claim 1 while Claims 18-22, 24 and 25 depend from Claim 17 and thus incorporate all the limitations of those respective claims. Because, as discussed above, the McNeely patent fails to anticipate all the elements of Claims 1 and 17, it also fails to anticipate Claims 2-6, 8-12, 14, 16, 18-22, 24 and 25. Applicants respectfully request the removal of the rejections of Claims 2-6, 8-12, 14, 16, 18-22, 24 and 25 under § 102 (b) as anticipated by the McNeely patent.

In the alternative, the Examiner rejected Claims 1-6, 8-12, 14, 16-22, 24 and 25 under 35 U.S.C. § 103 (a) as obvious over the McNeely patent in view of U.S. Patent No. 3,913,885 to Greenwood, et al. (“Greenwood” or “the Greenwood patent”). Applicants respectfully traverse this rejection and request reconsideration.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. In *re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

As noted above, Mc Neely only discloses the use of a dome reservoir that possesses both a spring and a piston to provide downward pressure on a second fluid. Applicants point out that in the discussion above, the pipe 106 in McNeely is not analogous to the claimed dome reservoir as by itself it cannot generate any downward pressure without the spring-piston system in valve 40. Therefore, the McNeely patent provides no suggestion or teaching that this downward force can be generated in a dome reservoir that lacks both a piston and a spring as is claimed in Claims 1 and 17.

Moreover, the Greenwood patent fails to teach or suggest a dome reservoir at all and, like McNeely, only discloses a valve in which downward pressure is generated only by a biasing spring 44. See Greenwood, col. 2, lines 16-18 stating, "Valve member 24 is biased toward seated position on valve seat 18 by the spring 44." Greenwood makes no disclosure or teaching of any other device or method of generating this downward force. Therefore, the combined McNeely and Greenwood patents fail to render Claim 1 obvious as they fail to provide any teaching or suggestion that a biasing spring and/or piston is not needed in a dome reservoir to generate downward force. In addition, they together give no reasonable expectation that a dome reservoir that lacks a biasing spring or piston would successfully generate downward force on a valve piston and they fail to teach or suggest all the limitations of Claim 1. For these reasons, the combined McNeely and Greenwood patents fail to establish a *prima facie* case of obviousness against Claim 1.

For the same reasons, the combined McNeely and Greenwood patent fail to render Claim 17 obvious as together they provide no suggestion for a method of relieving pressure in a fluid containing space that does not require the use of a dome reservoir with springs and a piston to generate downward pressure on a second fluid. Applicants respectfully request reconsideration and allowance of Claims 1 and 17.

"If an independent claim is nonobvious under 35 U.S.C. §103, then any claim depending therefrom is nonobvious." *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). Claims 2-6, 8-12, 14, and 16 depend from Claim 1 while Claims 18-22, 24 and 25 depend from

Claim 17 and thus incorporate all the limitations of those respective claims. Because, as discussed above, the McNeely and Greenwood patents fails to render obvious Claims 1 and 17, they also fail to render obvious Claims 2-6, 8-12, 14, 16, 18-22, 24 and 25. Applicants respectfully request the removal of the rejections of Claims 2-6, 8-12, 14, 16, 18-22, 24 and 25 and allowance of those claims.

The Examiner rejected Claims 1-6, 8-15, 17-22, and 25 under 35 U.S.C. § 102 (e) as anticipated by U.S. Patent No. 6,978,799 to Kugelev, et al. ("Kugelev" or "the Kugelev patent"). Applicants respectfully traverse this rejection and request reconsideration.

Applicants respectfully submit that Kugelev fails to anticipate independent Claims 1 and 17 as it fails to disclose all the elements of each of those amended claims. As noted above, Applicants have amended Claims 1 and 17 to include the element of a dome reservoir that lacks both a spring and a piston that applies pressure to the second fluid. The Examiner designated component 47 in the Kugelev valve as analogous to the dome reservoir claimed in Claims 1 and 17. Applicants respectfully point out that a piston 45 is contained within the dome reservoir in Kugelev and acts to apply pressure on the valve member 25 to close the valve. (See Kugelev col. 6, lines 4-8, stating, "The presence of pressurized control fluid 71 in upper portion 47 causes a biasing force to be exerted on the upper side of piston 45. The biasing force pushes piston 45 and valve member 25 toward into the closed position." Thus, it is clear that Kugelev fails to anticipate Claim 1 which claims a dome reservoir that lacks a piston and also fails to anticipate Claim 17 which claims a method for relieving pressure using a valve with a dome reservoir that specifically lacks a piston. Applicants respectfully request reconsideration and withdrawal of the rejections of Claims 1 and 17 as anticipated by the Kugelev patent.

Claims 2-6 and 8-15 depend from Claim 1 while Claims 18-22 and 25 depend from Claim 17 and thus incorporate all the limitations of those respective independent claims. Because, as discussed above, the Kugelev patent fails to anticipate all the elements of Claims 1 and 17, it also fails to anticipate Claims 2-6, 8-15, 18-22, and 25. Applicants respectfully request

the removal of the rejections of Claims 2-6, 8-15, 18-22, and 25 as anticipated by the Kugelev patent.

In the alternative, the Examiner rejected Claims 1-6, 8-15, 17-22, and 25 under 35 U.S.C. § 103 (a) as obvious over Kugelev in view of the Greenwood patent discussed above. Applicants respectfully traverse this rejection and request reconsideration.

Similar to the McNeely – Greenwood obviousness rejection discussed above, Applicants respectfully submit that the combined Kugelev – Greenwood references also fail to establish a *prima facie* case of obviousness against Claims 1 and 17 as both separately and together they fail to teach or suggest the possibility of a relief valve with a dome reservoir that lacks a mechanical component, such as a spring and/or a piston, to apply a biasing force on a second fluid. The Kugelev patent utilizes a piston to supplement this force provided by the fluid 71, while the Greenwood patent utilizes a spring. Neither patent suggests that the downward force can be applied solely by the compression and expansion of the second fluid in the dome reservoir into and out of the valve through the dome port without help from a separate mechanical biasing component. Therefore, the Kugelev and Greenwood patents fail to render Claims 1 and 17 obvious as they fail to teach or suggest any device or method that would create downward force on a second fluid without the use of a mechanical component such as a spring and/or a piston. Applicants respectfully request reconsideration and allowance of Claims 1 and 17.

Claims 2-6 and 8-15 depend from Claim 1 while Claims 18-22 and 25 depend from Claim 17 and thus incorporate all the limitations of those respective claims. Because, as discussed above, the Kugelev and Greenwood patents fails to render obvious Claims 1 and 17, they also fail to render obvious Claims 2-6, 8-15, 18-22, and 25. Applicants respectfully request the removal of the rejections of Claims 2-6, 8-15, 18-22, and 25 and allowance of those claims.

The Examiner rejected Claim 24 as obvious over Kugelev in view of Greenwood. Claim 24 depends from Claim 1 and thus incorporates all the limitations of that claim. Because, as discussed above, the Kugelev and Greenwood patents fail to render obvious Claim 1, they also

fail to render obvious Claim 24. Applicants respectfully request the removal of the rejection of Claim 24 and allowance of that claim.

The Examiner rejected Claims 7 and 23 as anticipated by McNeely. Claim 7 depends from Claim 1 while Claim 23 depends from Claim 17 and thus they incorporate all the limitations of those respective claims. Because, as discussed above, the McNeely patent fails to anticipate all the elements of Claims 1 and 17, it also fails to anticipate Claims 7 and 23. Applicants respectfully request the removal of the rejections of Claims 7 and 23 under § 102 (b) as anticipated by the McNeely patent.

In the alternative, the Examiner rejected Claims 7 and 23 under § 103 (a) as obvious over the combined McNeely and Greenwood patents as set forth above and further in view of U.S. Patent No. 5,174,326 to Steinert, et al. ("Steinert" or "the Steinert patent"). Applicants respectfully traverse this rejection and request reconsideration.

As noted above, the combined McNeely and Greenwood patents fail to render Claims 1 and 17 obvious as they fail to suggest or teach the application of downward force by second fluid without the use of a separate mechanical pressurizing component such as a spring and/or a piston. These references are applied against Claims 7 and 23 as they are against Claims 1 and 17 and therefore fail to render Claims 7 and 23 obvious. Thus, to render Claims 7 and 23 obvious, the Steinert patent must suggest or teach the application of biasing force without the use of a spring or piston. However, the Steinert patent, either separately or combined with McNeely and Greenwood, fails to render Claims 7 and 23 obvious as it only teaches the application of biasing force by using a spring. This is seen in Figures 1 and 2 in Steinert and explained in Col. 4, lines 6-11 of Steinert explaining, "The force of pressure of the compression spring **13** holds the valve closing body **10** in the open position against the back pressure occurring in the back pressure chamber **3**, so the flow connection between the inlet **5** and the outlet **6** is maintained." The Steinert patent provides no suggestion or teaching that the valve body can be held open by the force of a fluid alone. In fact, the Steinert patent, does not discuss the presence of any fluid on

the upper (spring side) of the diaphragm let alone a fluid that has any kind of pressurizing force on the valve body.

Therefore the combined McNeely, Greenwood, and Steinert patents fail to render Claims 7 and 23 obvious as they fail to teach all the elements of those claims (specifically a springless dome reservoir lacking a piston), make no suggestion that such a dome reservoir with a second pressurizing fluid can be utilized in a relief valve, and consequently provide no expectation of success that such a dome reservoir would be feasible. Applicants respectfully request reconsideration and allowance of Claims 7 and 23.

The Examiner rejected Claims 7 and 23 under § 102 (e) as anticipated by Kugelev. Claim 7 depends from Claim 1 while Claim 23 depends from Claim 17 and thus they incorporate all the limitations of those respective claims. Because, as discussed above, the Kugelev patent fails to anticipate all the elements of Claims 1 and 17, it also fails to anticipate Claims 7 and 23. Applicants respectfully request the removal of the rejections of Claims 7 and 23 under § 102 (e) as anticipated by the Kugelev patent.

In the alternative, the Examiner rejected Claims 7 and 23 under § 103 (a) as obvious over the combined Kugelev and Greenwood patents as set forth above and further in view of U.S. Patent No. 5,174,326 to Steinert, et al. ("Steinert" or "the Steinert patent"). Applicants respectfully traverse this rejection and request reconsideration.

As noted above, the combined Kugelev and Greenwood patents fail to render Claims 1 and 17 obvious as they fail to suggest or teach the application of a downward force by a second fluid without the use of a separate component such as a spring and/or a piston. These references are applied against Claims 7 and 23 as they are against Claims 1 and 17 and therefore fail to render Claims 7 and 23 obvious. Thus, to render Claims 7 and 23 obvious, the Steinert patent must suggest or teach the application of a biasing force without the use of a spring or piston. However, the Steinert patent, either separately or combined with Kugelev and Greenwood, fails to render Claims 7 and 23 obvious as it only teaches the application of biasing force by using a

spring. This is seen in Figures 1 and 2 in Steinert and explained in Col. 4, lines 6-11 of Steinert as noted above. The Steinert patent provides no suggestion or teaching that the valve body can be held open by the force of a fluid alone. In fact, the Steinert patent, does not discuss the presence of a fluid on the upper (spring side) of the diaphragm let alone a fluid that has any kind of pressurizing force on the valve body.

Therefore the combined Kugelev, Greenwood, and Steinert patents fail to render Claims 7 and 23 obvious as they fail to teach all the elements of those claims (specifically a springless dome reservoir lacking a piston), make no suggestion that such a dome reservoir with a second pressurizing fluid can be utilized in a relief valve, and consequently provide no expectation of success that such a dome reservoir would be feasible. Applicants respectfully request reconsideration and allowance of Claims 7 and 23.

The Examiner rejected Claim 26 under § 103 (a) as obvious over the McNeely patent or the combination of the McNeely and Greenwood patents in view of U.S. Patent No. 3,917,290 to Geffroy ("Geffroy" or "the Geffroy patent") or U.S. Patent No. 4,580,790 to Doose ("Doose" or "the Doose patent") or U.S. Patent No. 6,428,014 to Scarlett ("Scarlett" or "the Scarlett patent"). Applicants respectfully traverse this rejection and request reconsideration.

Regarding the McNeely in view of Greenwood rejection, Applicants note that Claim 26 depends from Claim 1 and thus incorporates all the limitations of that claim. Because, as discussed above, the McNeely and Greenwood patents fail to render obvious Claim 1, they also fail to render obvious Claim 26. Applicants respectfully request the removal of the rejection of Claim 26 and allowance of that claim.

Regarding the McNeely and Greenwood references as combined with one of the Geffroy, Doose, or Scarlett patents, Applicants respectfully submit that all of these combinations of references also fail to render Claim 26 obvious. As discussed above, neither McNeely nor Greenwood teach or suggest the use of a second pressurizing fluid without the use of a mechanical component such as a pressurizing spring or piston as is claimed in Claim 26. Thus,

to render Claim 26 obvious, one or more of the Geffroy, Doose, or Scarlett patents must at least teach or suggest the use of a fluid in a reservoir dome that applies pressure by itself. However, Geffroy, Doose, and Scarlett are directed only to rings and seals made from PTFE and make no mention of independent pressurizing fluids. Thus the combined McNeely, Greenwood, Geffroy/Doose/Scarlett patents fail to establish a *prima facie* case of obviousness against Claim 26 as they fail to teach or suggest all the elements of that claim and fail to suggest any modification that would lead to teaching a springless dome reservoir that also lacks a biasing piston. Applicants respectfully request reconsideration and allowance of Claim 26.

The Examiner rejected Claim 26 under § 103 (a) as obvious over the Kugelev patent or the combination of the Kugelev and Greenwood patents in view of U.S. Patent No. 3,917,290 to Geffroy ("Geffroy" or "the Geffroy patent") or U.S. Patent No. 4,580,790 to Doose ("Doose" or "the Doose patent") or U.S. Patent No. 6,428,014 to Scarlett ("Scarlett" or "the Scarlett patent"). Applicants respectfully traverse this rejection and request reconsideration.

Regarding the Kugelev in view of Greenwood rejection, Applicants note that Claim 26 depends from Claim 1 and thus incorporates all the limitations of that claim. Because, as discussed above, the Kugelev and Greenwood patents fail to render obvious Claim 1, they also fail to render obvious Claim 26. Applicants respectfully request the removal of the rejections of Claim 26 and allowance of that claim.

Regarding the Kugelev and Greenwood references as combined with one of the Geffroy, Doose, or Scarlett patents, Applicants respectfully submit that these combinations of references also fail to render Claim 26 obvious. As discussed above, neither Kugelev nor Greenwood teach or suggest the use of a second pressurizing fluid without the use of a mechanical component such as a spring or piston as is claimed in Claim 26. Thus, to render Claim 26 obvious, one or more of the Geffroy, Doose, or Scarlett patents must at least teach or suggest the use of a fluid in a reservoir dome as applying pressure by itself. However, Geffroy, Doose, and Scarlett are directed only to rings and seals made from PTFE and make no mention of independent

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pressurizing fluids. Thus the combined Kugelev, Greenwood, Geffroy/Doose/Scarlett patents fail to establish a *prima facie* case of obviousness against Claim 26 as they fail to teach or suggest all the elements of that claim and fail to suggest any modification that would lead to teaching a springless dome reservoir that also lacks a biasing piston. Applicants respectfully request reconsideration and allowance of Claim 26.

### Conclusion

Applicants respectfully submit that the present application is now in condition for allowance, which action is courteously requested. The Examiner is invited and encouraged to contact the undersigned attorney of record if such contact will facilitate an efficient examination and allowance of the application.

Respectfully yours,



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